

FREE VirtualLab Fusion Seminar

Beyond Ray Tracing: Innovative Optical Design with Fast Physical Optics

Location: Faculty of Applied Sciences, Building 22, Delft, Netherlands

Date: 8 October 2018

Time: 9:00 am – 4:00 pm

Registration: info@lighttrans.com

Modern optical technology has so branched out from traditionally understood lens systems that ray optics often falls short when it comes to simulating and designing cutting-edge optical systems with acceptable accuracy. A software package that yields fast physical optics simulation results alongside ray tracing then becomes, not a choice, but a necessity. This is precisely what VirtualLab Fusion offers: come to our free seminar to discover the fast physical optics concept, how to benefit from it through our user-friendly GUI, and an overview of what it can provide in a wide-ranging set of applications!

Seminar Schedule

Concepts, techniques, and customization

9:00 am – 12:00 am

- Introduction to the theory and concepts of fast physical optics
- Modeling techniques in VirtualLab Fusion
- Design methods for diffractive, refractive, and hybrid optical components and systems
- VirtualLab Fusion user-interface concept, tools, customization and programming

Applications and software demonstrations

1:00 pm – 4:00 pm

- Discussion and demonstration of application examples out of a collection of numerous VirtualLab Fusion use cases
- Insights into the functionality and usage of VirtualLab Fusion through use cases
- Questions & answers on how VirtualLab Fusion can provide the solution you seek

LIGHT
SHAPING



OPTICAL
METROLOGY



IMAGING
SYSTEMS



LASER
SYSTEMS



VIRTUAL AND
MIXED REALITY



VirtualLab Fusion Technologies

In the seminar we will discuss VirtualLab's modeling techniques — a very general approach to optical modeling facilitates the combination of many different tools in a single platform.

- Lasers, LD, VCSEL and LED sources, fs pulses
- Aberration and PSF/MTF
- Radiometric and photo-metric detectors
- Diffraction integrals
- Fast k-domain operators
- RCWA grating modeling
- Local Maxwell solvers
- Thin element approximation (TEA)
- Beam propagation method (BPM)
- Coating S matrix
- GRIN media solver
- Crystal modeling
- Waveguide solver
- Mie scattering
- IFTA design algorithm
- Parametric optimization
- Interpolation techniques
- optimization options and investigations of parameter variations

VirtualLab Fusion Applications

Together with the seminar participants we will select the applications and software use cases of most interest. The application examples include but are not restricted to:

- Laser beam delivery, scanning, LIDAR systems
- Freeform surfaces for imaging and light shaping
- Diffractive, Fresnel and meta-lens modeling and design
- Ghost image investigation
- High-NA diffractive beam splitting
- Diffractive diffuser for illumination
- Shaping light of VCSEL arrays
- Microlens arrays
- Spatial light modulators
- Microscopy
- Spectroscopy
- Telescopes
- Interferometry
- Grating optimization
- Fiber coupling
- AR/MR/VR/HUD systems

